Shellfish Protection Program

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Problem Definition

Puget Sound is one of the richest shellfish growing areas, and Washington State is the leading producer of farmed shellfish in the United States. The Pacific Coast Shellfish Growers Association estimates the wholesale value of commercial oyster, clam and mussel production in Puget Sound at about $50 million per year. In addition, the Department of Natural Resources reported average, annual harvests of approximately 1.6 million pounds of geoducks over the last 10 years.

The value of Puget Sound's shellfish resources goes far beyond the economic numbers. Shellfish are prized symbols of the region's heritage and quality of life. They play a critical role in maintaining the health of the estuary and providing popular sport fishing resources. According to the Department of Fish and Wildlife, nearly a quarter of a million people harvested shellfish from the Sound's public beaches in 1998, yielding approximately 700,000 pounds of clams and 900,000 pounds of oysters.

Shellfish harvesting, however, depends on many factors—most notably clean water. Oysters, clams and mussels are "filter feeders" meaning they take in and strain their food from the surrounding water. During the process of filter feeding, shellfish can accumulate contaminants that are present in the environment, including disease-causing organisms associated with human and animal feces.

Polluted waters are not strictly an urban concern. Growth and development are changing the character of watersheds around the Sound, threatening shellfish harvesting in an increasing number of rural areas.

Since 1980, roughly one-quarter of the area classified for commercial shellfish harvesting has been downgraded and taken out of production, primarily because of inadequately treated sewage from municipal treatment plants and on-site septic systems; contaminated stormwater runoff; and waste from marinas and boaters, farm animals and wildlife. (Figure 4, next page.)

The most dramatic downgrades occurred in the late 1980s. In the 1990s, things began to stabilize as communities and agencies carried out many successful efforts to protect and restore water quality in shellfish areas—relying on public education, watershed planning, growth management, and measures to find and fix nonpoint pollution sources.

What does "shall" mean?

The Action Team has determined that the actions in this plan are needed to protect and restore Puget Sound. Consistent with the importance of these actions, this plan says that appropriate implementers "shall" perform the actions. However, implementation of many of these actions is a long-term process. The Action Team's work plans will identify the actions that need to be taken each biennium to implement this management plan. Implementation of actions in the work plans is subject to the availability of funds and public input into the decision-making processes of implementing entities. When an action is included in a biennial work plan, the Action Team expects that it will be implemented in accordance with the relevant provisions of the Puget Sound management plan, in accordance with Chapter 90.71 RCW.

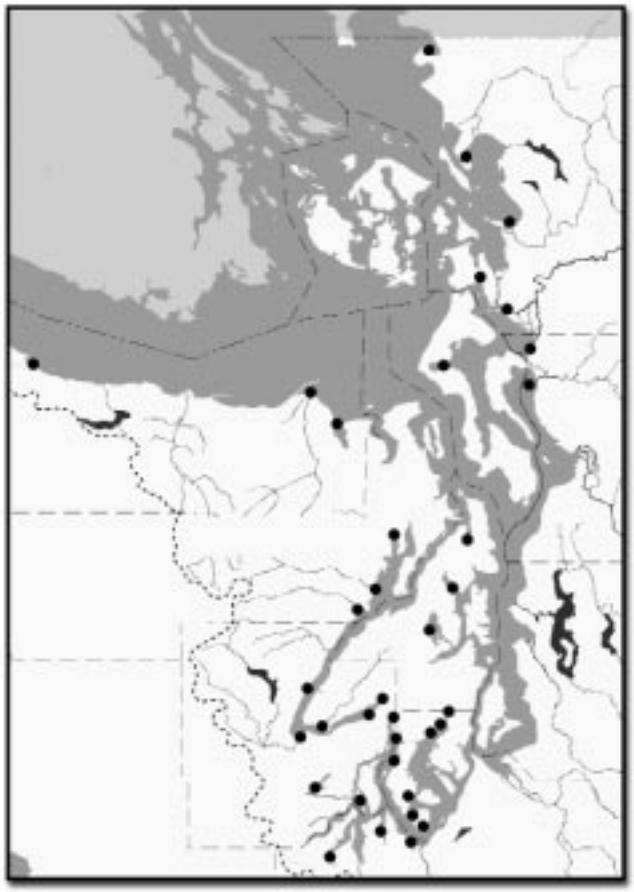

Figure 4

- Shellfish areas affected by pollution since 1980.

While much has been achieved, it is increasingly clear that efforts to restore already degraded shellfish beds will ultimately come up short if actions are not taken to permanently protect these unique and sensitive habitats.

Institutional Framework

State agencies, tribal and local governments, universities, shellfish growers, citizen committees and nonprofit organizations all play key roles in protecting and restoring water quality in shellfish areas.

On the state front, state agencies administer and enforce water pollution control laws, monitor and classify shellfish beds, oversee shellfish harvesting, and provide financial and technical assistance to tribal and local governments. State universities provide research and education on a range of issues related to shellfish harvesting.

The Northwest Indian Fisheries Commission works with tribal governments to carry out sound shellfish harvesting practices and to address management issues on a collective basis. Tribal governments also work independently and in partnership with federal, state and local agencies to protect and manage shellfish resources.

The Northwest Straits Commission and the local Marine Resources Committees are working to protect and restore shellfish beds and other marine resources and habitats in the seven-county area of north Puget Sound.

Local governments oversee a number of programs and operations that have a direct influence on water quality in shellfish areas, including programs related to land use, pollution control and public health. Cities and counties are responsible for comprehensive land-use plans, shoreline master programs, development regulations and public facilities (such as municipal sewage treatment plants). Local health jurisdictions collaborate with state Health to regulate the use of on-site sewage systems, monitor and classify recreational shellfish beaches and inform the public about safe shellfish harvesting practices. Local conservation districts work with farmers and other landowners to improve agricultural practices and other land-use activities to protect water quality.

The *Puget Sound Water Quality Management Plan* calls for a collaborative approach for protecting the Sound's shellfish resources. The Shellfish Protection Program's focus on water quality is designed to preserve safe, shellfish harvest opportunities for future generations.

Program Goal

To protect water quality and prevent contamination of shellfish beds so that shellfish are safe for human consumption, to reduce contamination of shellfish beds to achieve a net increase in acreage approved for harvest, and to prevent human consumption of shellfish from contaminated beds until such time as the contamination is corrected.

Program Strategy

The strategy for achieving this goal is to:

a. Adopt policies to ensure that pollution-control and land-use programs effectively protect water quality in shellfish areas;

b. Respond to existing and potential shellfish contamination with aggressive restoration and protection programs;

c. Monitor shellfish areas for bacterial contamination, marine biotoxins and other contaminants; and

d. Increase public involvement and education related to shellfish protection.

SF-1. Shellfish Protection and Restoration Policy

State agencies and local and tribal governments shall ensure that their pollution-control and land-use programs meet these objectives:

a. Protect shellfish beds from contamination and prevent classification downgrades; and

b. Restore water quality in contaminated areas so that harvest restrictions can be lifted.

Target Date for SF-1**:** Ongoing.

SF-2. Protection and Restoration of Shellfish Beds

The Washington State departments of Ecology, Fish and Wildlife, Health, Natural Resources and Agriculture; the State Parks and Recreation Commission; the Conservation Commission; the Office of Community Development (OCD); the Northwest Indian Fisheries Commission; Washington Sea Grant; the Northwest Straits Commission and local marine resources committees; and local and tribal governments, in cooperation with the Puget Sound Water Quality Action Team support staff, shall continue their existing programs and work cooperatively and aggressively to protect and restore water quality in shellfish areas. Efforts shall target priority shellfish areas that meet, or could be expected to meet, state water quality standards but are threatened or affected by contamination from existing or projected land and water uses. State funding and technical assistance shall be provided to local and tribal governments to develop and implement programs aimed primarily at preventing any degradation of water quality or downgrade in the classification of the Sound's threatened shellfish growing areas.

Ecology has lead responsibility on water quality issues, including enforcement of the federal Clean Water Act and state Water Pollution Control Act, Chapter 90.48 RCW. Ecology shall continue to provide policy guidance, financial aid, resource characterizations and technical assistance to local and tribal governments, conservation districts and other entities carrying out programs for shellfish protection and restoration. Ecology shall continue to provide technical assistance on:

a. Shellfish protection districts and other funding sources;

b. Water quality monitoring to locate and control pollution sources; and

c. Best management practices (BMPs) for stormwater runoff, agricultural practices and other potential pollution sources, including sewage treatment systems with flows greater than 14,500 gallons per day.

Health has lead responsibility on public health and shellfish sanitation issues, including implementation and enforcement of the National Shellfish Sanitation Program. Health shall continue to:

a. Coordinate its investigations and monitoring program with participating agencies and governments;

b. Convene meetings of the Shellfish Advisory Committee;

c. Monitor shellfish beds to determine classifications and to assess the effectiveness of actions taken to prevent contamination or to restore water quality in areas where harvesting restrictions apply;

d. Develop assessments of pollution sources, recommend corrective actions and provide technical assistance; and

e. Regulate and provide technical assistance on the siting, design, installation, use and maintenance of on-site sewage systems in partnership with local health jurisdictions.

Health shall provide data, as soon as it is available, from water quality monitoring, trend analysis and other summary information on shellfish growing areas to all parties involved in shellfish protection and restoration activities. Also, in conjunction with publication of the annual inventory and growing area reports, Health shall provide local governments, affected growers and others with information on shellfish beds threatened by contamination.

The Action Team support staff has lead responsibility on policies and actions developed and carried out under the *Puget Sound Management Plan* and the *Puget Sound Work Plan*. Action Team support staff shall continue to:

a. Coordinate state technical assistance for shellfish protection and restoration programs and projects;
b. Provide information on local finance authorities and public and private funding sources;
c. Recommend strategies for land-use and pollution-control plans and planning processes;
d. Assist with activities related to public involvement and education; and
e. Develop actions and set priorities for the biennial work plans.

Cities and counties shall fully implement provisions of the Growth Management Act (Chapter 36.70A RCW) and accompanying regulations (including Chapter 365-190 WAC) to protect and, where feasible, restore water quality in shellfish areas. Local governments shall also use other regulatory tools such as the Shoreline Management Act (Chapter 90.58 RCW) and accompanying guidelines (Chapter 173-26 WAC), the State Environmental Policy Act (Chapter 43.21C RCW, Chapter 197-11 WAC), and state and local on-site sewage regulations (Chapter 173-240 WAC) to protect shoreline habitats and to ensure compliance with water quality standards in shellfish areas. In places where existing or projected land uses or sources of contamination threaten the condition or classification of shellfish areas, local governments shall institute strategies to mitigate the effects.

When local governments adopt or concur with locally developed watershed plans, the goals, policies and strategies of those plans shall be incorporated into comprehensive plans, capital facilities plans, critical areas ordinances and other regulations and programs. Jurisdictions sharing watersheds shall cooperate in analyzing water quality threats and effects, and shall adopt coordinated programs for monitoring, protecting and restoring shellfish areas. Local governments shall also pursue funding to ensure the protection of water quality and shellfish, considering such authorities as shellfish protection districts, stormwater utilities, on-site sewage system maintenance districts, conservation district special assessments and comprehensive surface water utilities.

Target Date for SF-2**:** Ongoing.

SF-3. Testing Selected Shellfish Beds for Toxicants

The management and steering committees of the Puget Sound Ambient Monitoring Program (PSAMP) shall continue to periodically review the environmental and public health risks associated with persistent, bioaccumulative toxicants in shellfish and other marine invertebrates. The committees shall carry out sampling activities in selected shellfish areas as needed and as agreed to in the PSAMP implementation plans.

Target Date for SF-3**:** Ongoing.

SF-4. Recreational Shellfish Program

Ecology, Health, Fish and Wildlife, Natural Resources, State Parks, Northwest Indian Fisheries Commission, Washington Sea Grant, Action Team support staff, local and tribal governments, the Northwest Straits Commission and local marine resources committees and other organizations shall continue their programs to preserve and enhance recreational shellfish harvesting opportunities and to educate the public about safe shellfish harvesting.

Health shall continue working with the Shellfish Advisory Committee to guide and evaluate its recreational shellfish program. Based on the committee's guidance and the requirements of the state regulation for recreational shellfish beaches (Chapter 246-280 WAC), Health shall continue to distribute funds and collaborate with local health jurisdictions on the development and implementation of local programs for recreational shellfish harvesting. These programs shall emphasize recreational beaches where public use and health risks are highest, and shall include such activities as monitoring water quality, classifying beaches, posting signs, issuing press releases and educating the public to prevent the harvesting and consumption of contaminated shellfish. Health shall also convene workshops periodically to share information on key issues related to recreational shellfish harvesting.

Health, Ecology and the Action Team support staff shall continue to collaborate with other state agencies and local and tribal governments to carry out the activities described in elements SF-2 and SF-7 to protect and restore water quality in recreational shellfish areas.

Target Dates for SF-4**:** Health shall convene recreational shellfish workshops every six months; distribute funds to local health jurisdictions for recre-

ational shellfish programs annually; and rank recreational beaches based on use and health risks, reevaluate their classifications, and expand the list of classified beaches annually.

SF-5. Annual Inventory and Information Management

Health shall publish annual growing area reports and the *Annual Inventory of Commercial and Recreational Shellfish Areas of Puget Sound*, providing information on water quality conditions and highlighting those areas threatened by contamination and classification downgrades (early warning system). The inventory, growing area reports and accompanying list of threatened shellfish areas shall be distributed to local health jurisdictions, tribal governments, affected growers and other parties involved in shellfish protection and restoration activities. In coordination with PSAMP, Health shall continue to improve its management and analysis of data to better understand water quality conditions and trends in Puget Sound's shellfish areas. These findings shall be disseminated as described in element SF-2.

Target Dates for SF-5**:** Health shall distribute the growing area reports and list of threatened shellfish areas by April of each year, and shall distribute the inventory by June of each year.

SF-6. Public Involvement and Education

The Action Team support staff shall collaborate with Ecology, Health, Fish and Wildlife, Natural Resources, OCD, State Parks, Conservation Commission, Northwest Indian Fisheries Commission, Washington Sea Grant, the Northwest Straits Commission and local marine resources committees and other organizations to develop and carry out a communications strategy to educate and involve the general public and target audiences in protecting water quality and shoreline habitats for shellfish harvesting. The strategy shall be framed around a set of core messages, including the cultural and economic values of shellfish harvesting, the threats to water quality in shellfish areas from urbanization and population growth, and tools and techniques for protecting water quality and shellfish habitat. The strategy shall identify key events, publications and other opportunities for educating and involving target audiences in issues and activities related to shellfish protection. The strategy shall also lay out approaches for developing and disseminating information and for integrating key messages and materials into established programs, projects and planning processes. Action Team support staff shall collaborate with Health to ensure coordination with the Shellfish Advisory Committee.

Target Date for SF-6**:** The Action Team support staff shall work with the participating organizations to develop the communications strategy and convene meetings at least semi-annually to coordinate activities and to evaluate progress.

SF-7. Shellfish Closure Response Strategy

State agencies and local and tribal governments shall structure their policies, programs and projects to prevent the contamination of shellfish areas. When shellfish areas are identified as threatened in the annual growing area reports, the agencies and governments shall collaborate and target their actions to restore water quality and prevent classification downgrades. When shellfish areas are officially downgraded by Health, the state agencies, local and tribal governments and other affected interests shall develop and implement closure response strategies to restore water quality and to upgrade the classifications.

Ecology, Health and the Action Team support staff shall continue to implement and update, as necessary, a memorandum of agreement that governs their responses to classification downgrades caused by water quality degradation. Closure response strategies shall be initiated within 30 days of a downgrade and completed within 60 days. At a minimum, each strategy shall provide for the participation of all affected agencies, local and tribal governments, growers, interest groups and individuals, and shall include concise and aggressive assignments and compliance schedules for correcting the sources of contamination.

All organizations participating in the closure response process shall work together to secure funding from public and private sources to successfully carry out the closure response strategies. The closure response strategies shall also be coordinated with relevant land-use and water quality plans to ensure swift and effective restoration of water quality and avoid duplication of effort.

Chapter 90.72 RCW, Shellfish Protection Districts, encourages counties to establish shellfish

protection districts and programs to prevent the contamination of shellfish areas, and requires counties to take these actions when shellfish beds are downgraded due to nonpoint source pollution. Creation of these districts and programs shall be integrated with the closure response strategies.

Target Date for SF-7**:** State agencies and local and tribal governments shall prepare and implement closure response strategies as needed.

SF-8. Measuring Program Effectiveness

The Puget Sound Action Team support staff shall facilitate evaluation of program results by evaluating program and environmental performance measures. This supports the adaptive management approach described in the Estuary Management Program of the *Puget Sound Management Plan*. At a minimum, these evaluations should incorporate information from the following monitoring and assessment sources:

A. Program measures that track implementation of this program:
   - Number and miles of public recreational beaches classified.
   - Number of downgraded shellfish areas covered by shellfish closure response strategies.

B. Case studies that assess the effectiveness of program actions:
   - Changes in levels of bacterial contamination correlated with shoreline and watershed activities.

C. Measures of environmental conditions for which this program is a major or important determinant (recognizing that these measures may be affected by several plan programs):
   - Number and acres of commercial shellfish areas reclassified.
   - Number and miles of public recreational beaches reclassified.
   - Percentage of people harvesting from classified recreational beaches.
   - Percentage of people harvesting from approved recreational beaches.
   - Number and acres of shellfish areas downgraded and subsequently upgraded as a result of closure response strategies.
   - Percentage of sampling stations at core PSAMP shellfish sites with good, threatened or poor levels of bacterial contamination.
   - Percentage of sampling stations at core PSAMP shellfish sites with increasing, decreasing, or unchanging levels of bacterial contamination.